

Things to Know, Understand and Do For Chapter 4: Moving Electrons

By the end of Chapter 4, you should

Know how to...
Describe origin of light from excited atoms, its relationship to atomic structure and how Bohr's atomic model accounts for the emission line spectra of excited hydrogen and why it does not work in an atom with 2 or more electrons.
Understand that, in the Bohr model of the H atom, the electron can occupy only certain energy levels. Also how electrons can jump from energy level to energy level, absorbing and releasing energy.
Describe the shapes of the s, p, and d orbitals and identify the types that exist
Write the electron configurations, electron dot notations, and noble gas notations for atoms in their ground as well as monatomic ions.
Using the periodic table as a guide, write electron configurations, recognizing paired and unpaired electrons.
Recognize the electrons are assigned to subshells of an atom in order of increasing subshell energy in many electron atoms. (the ns orbital fills before the (n-1)d orbital.)
When assigning electrons to atomic orbitals, apply the Aufbau principle
Explain how ionic bonds form
Determine the formula of an ionic formula given two ions.
Name an ionic compound from its given formula

understand...
Rutherford's model of the atom and the two reasons why it was wrong.
How the Bright Line Spectrum of an element is created.
Bohr's model of the hydrogen atom, and how he was right and wrong
How the quantum model is similar and different than Bohr's model
Understand how an orbital for an electron in an atom corresponds to both the allowed energy of that electron.
What subscripts are and how they are determined for ionic compounds.

Ch 4 Homework

Due the day before the test. Must be completed neatly. Use full sentences and/or show all work in calculations for full credit where applicable. This assignment may be passed in anytime before the test though. Students may also elect to pass in questions in smaller chunks during the course of our coverage of the chapter if that is more conducive to their learning style.

Read Chapter 4 (p 82-122)

Do the following problems:

P 87 Q 1, 2
P 92 Q 3, 6 (a,c,d,e)
P 97 Q 1, 3, 8, 10, 11
P 102 Q 7
P 103 Q 8
P 111 Q 3, 4
P 115 Q 4, 5
P 121 Q 10, 11 (a,b,d,e), 13 (a, b, c)